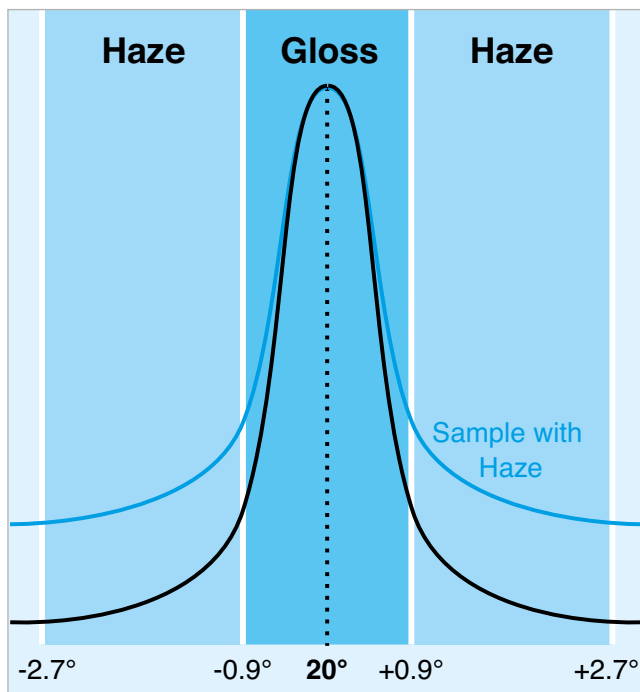
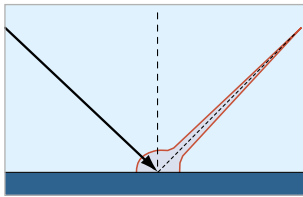


# Introduction

## Reflection Haze

High quality (class A) surfaces are expected to have a clear and brilliant appearance. Microstructures, e. g. poor dispersion, can cause a milky appearance. This effect is described as milkiness or haze. A high gloss surface with microscopic texture has diffused light with low intensity adjacent to the main direction of reflection. The majority of the incident light is reflected in the specular direction which makes the surface appear highly glossy with image forming qualities, but with a milky haziness on top of it.

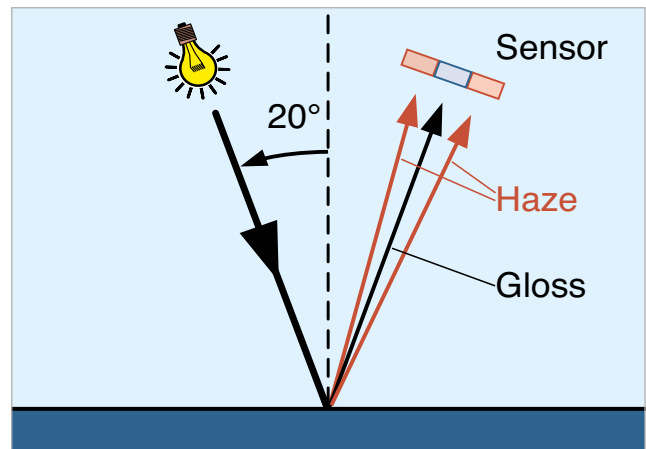


# HAZE



## Objective Measurement of High Gloss Surfaces: Gloss and Haze

The phenomenon haze can be seen on high gloss surfaces only. Therefore, 20° geometry is used just like with a glossmeter. The aperture range of a 20° gloss meter is 1.8°. Two additional sensors next to the gloss detector measure the intensity of the diffused light, responsible for haze. Thus, the specularly reflected and scattered light are measured simultaneously. In order to better correlate with the visual perception, haze is displayed in a logarithmic scale – the lower the haze reading the better the surface.



## Analysis of High Gloss Surfaces: Gloss and Haze

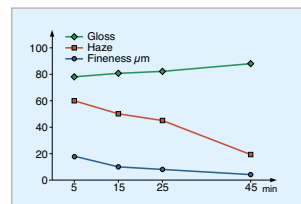
Haze is often caused by specific parameters in the production process, i.e.:

- Pigment type and degree of dispersion
- Binder and additive type
- Application and processing

## Examples

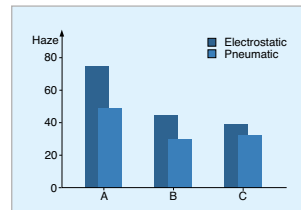
### Degree of Dispersion

The graph on the right shows the influence of degree of dispersion on gloss and haze. Pigment particles smaller than 10 µm will show a tremendous reduction in haze while the gloss value is nearly the same.



### Application Type

In practice it is important to test the process compatibility of a paint system. In the example on the side, different paint systems were applied with electrostatic and pneumatic equipment: System A flocculates under the electrostatic spray condition which can be seen in the increased haze value. System B shows an excellent low haze value with pneumatic application, but a tendency to flocculation with electrostatic equipment. System C was optimized for either application.



### Polishing

Other causes for haze can be weathering, abrasion or polishing marks. Simultaneous measurement of gloss and haze allows objective evaluation of the surface quality. BYK-Gardner offers a portable haze meter, the micro-haze plus; and a stationary unit, the haze-gloss, especially developed for the use in the laboratory.